SATA HDD Duplicator Controller

User's Manual

—Version: 1.5—

Attention:
Wait over 5 seconds to power on after shutdown to prevent the abnormal operation of the system.

ACARD TECHNOLOGY

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CE FC

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WEEE Statement

WEEE Statement

English

In order to cope with the increasing waste electrical and electronic equipment, reduce the use of landfill and incinerator, and prevent the harmful matter of waste equipment from entering the environment, the European Union (EU) has set the Directive on Waste Electrical and Electronic Equipment (WEEE) asking manufacturers to collect, recycle and treat waste electrical and electronic equipment properly. Member nations already established their free of charge recycle systems of WEEE before August 13, 2005. Accordingly, ACARD has to be responsible for recycling all products exported to Germany. You can return your ACARD product that needs recycling to a local collector.

WEEE Erklärung

German

Mit dem Ziel die steigende Menge elektrischer und elektronischer Altgeräte zu bewältigen ohne hierzu unnötig Mülldeponien und Verbrennungsanlagen zu belasten und um die Verschmutzung der Umwelt durch freiwerdende Stoffe aus den Altgeräten zu vermeiden, hat die Europäische Union (EU) die Richtlinie über Elektro- und Elektronik-Altgeräte erlassen. Die Richtlinie verpflichtet Hersteller, elektrische und elektronische Altgeräte umweltgerecht einzusammeln, zu recyceln und zu entsorgen. Die Mitgliedsstaaten der EU haben bereits ihre kostenfreien Recyclesysteme konform der WEEE vor dem 13. August 2005 eingerichtet. Entsprechend der Richtlinie ist ACARD verantwortlich für die umweltgerechte Entsorgung aller nach Deutschland exportierten ACARD Produkte. Sie können Ihr zu entsorgendes ACARD Produkt zu Ihrer örtlichen Sammelstelle bringen.

AEEA verklaring

Dutch

Met het doel de stijgende hoeveelheid afgedankte elektrische en elektronische apparatuur te beheersen zonder hiervoor onnodig stortplaatsen en verbrandingsovens te belasten en om de vervuiling van het milieu door vrijkomende stoffen uit de afgedankte apparatuur te voorkomen, heeft de Europese Unie (EU) de richtlijn betreffende afgedankte elektrische en elektronische apparatuur besloten. Deze richtlijn verplicht fabrikanten afgedankte elektrische en elektronische apparatuur in te zamelen, te recyclen en te verwijderen. De lidstaten van de EU hebben reeds de kosteloze recyclesystemen volgens de AEEA vóór de 13 augustus 2005 ingericht. Conform de richtlijn is ACARD verantwoordelijk voor de verwijdering van alle naar Nederland geëxporteerde ACARD producten. U kunt uw afgedankt ACARD product naar uw locale inzamelplaats brengen.

Elektrik ve Elektronik Madde Atıkları Demeci

Turkish

Elektrik ve electronik madde atıklarının yukselmesiyle basedebilmek ,arazi doldurma ve cop yakma fırını kullanımını azaltmak,atık madde zararlarının cevreye yayılmasını onlemek icin Avrupa Birligi (AB),ureticilerden elektrik ve elektronik madde atıklarını gerektigi gibi toplamalarını,geri donusturmelerini ve kimyasal isleme tabi tutmalarını talep etmek icin Elektrik ve Elektronik Madde Atıkları uzerine bir direktif hazırladı.Topluluk uyeleri,13 Agustos 2005' ten once elektrik ve elektronik madde atıklarının ucretsiz geri donusum sistemlerini coktan olusturmuslardı.Bundan dolayı, ACARD, Almanya'ya ihrac ettigi butun urunlerin geri donusumunden sorumludur.ACARD urunleri geri donusum gerektirirse yerel toplayıcılara geri verebilirsiniz.

WEEE бюлетень

Russian

ЧтобЫ cIIравиться с увеличивающимся ненужным электрическим и электронным оборудованием, уменъшите использование закапывания мусора и использования установки для сжигания отходов, препятствуйте вредному выбросам загрязнять окружановки среду, Европейский союз (ЕС) установил Директиву по Ненужному Электрическому и Электронному Оборудованию (WEEE) для того, чтобы изготовителей собрали, перерабатывали и вообще проявили внимание к ненужному электрическому и злектронному оборудованию должным образом. Члены нации установили бесплатную систему и электронному оборудованию должным образом. Члены нации установили бесплатную систему переработки WEEE до 13 августа 2005. Соответственно, ACARD обязан быть ответственным за то, что переработал все продукты, экспортируемые в Германию. Вы можете возвратнть ваш продукт ACARD, который нуждается в рециркуляции местному сборщику.

WEEE Statement

French

Afin de gérer la quantité croissante de déchets électriques et électroniques, de réduire l'utilisation des décharges et des incinérateurs et d'éviter que des déchets nocifs ne polluent l'environnement, l'Union Européenne a publié la directive WEEE sur les déchets électriques et électroniques. Celle-ci spécifie que les fabricants doivent collecter, recycler et traiter l'équipement électronique et électrique usagé. Depuis le 13 août 2005, les pays membres ont mis en place un système de recyclage gratuit selon le WEEE,.

De ce fait, Acard est responsable du recyclage de tous les produits exportés vers l'Allemagne. Vous pouvez mettre au rebut votre équipement ACARD usagé dans votre centre local de recyclage.

Pour plus d'informations sur les lieux de mise au rebut des équipements usagés destinés au recyclage, veuillez contacter votre mairie, votre service de traitement des déchets ménagers ou le magasin où vous avez acheté le produit.

RAEE

Spanish

Con la finalidad de reducir el incremento de residuos eléctricos y de material electrónico, reduciendo el uso de los vertederos e incineradoras y prevenir el preocupante aumento del contacto de estos residuos con el medio ambiente. Por este motivo la Unión Europea ha fijado la Directiva de Residuos de Aparatos Eléctricos y Electrónicos (RAEE) solicitando a los fabricantes la recolección, reciclaje y tratamiento de ests residuos correctamente. Los paises miembros ya han establecido su sistema de reciclaje gratuito de RAEE antes del 13 de Agosto del 2005. Por este motivo ACARD es el responsable del reciclaje de todos los productos exportados a Alemania. Usted puede devolver su producto Acard a un punto de recogida local cuando desee reciclarlo.

Dichiarazione WEEE

Italian

Per far fronte all'aumento dei residui delle apparecchiature elettriche ed elettroniche, ridurre l'uso di materiale di riporto e degli inceneritori, ed impedire che il materiale nocivo delle apparecchiature residue entri a contatto con l'ambiente, l' Unione Europea (UE) ha stabilito le Direttive sui Residui delle apparecchiature Elettriche ed Elettroniche (WEEE) chiedendo ai fornitori di raccogliere correttamente, riciclare e trattare le apparecchiature elettriche ed elettroniche residue. Le nazioni facenti parte dell' Unione Europea hanno già stabilito il loro sistema gratuito di riciclaggio di questo materiale (WEEE) prima del 13 agosto 2005. Di conseguenza, ACARD è responsabile del riciclaggio di tutti i prodotti esportati in Germania. Potete restituire il vostro prodotto acquistato da ACARD che deve essere riciclato da un' azienda specifica locale.

Chapter 1 Introduction

1.1 Overview

The eleven SATA HDD Duplicator models available are ARS-2051F/5501F/5501H/5503M/5503H/ 2055PF/5505E/5505M/5505H/5509M/2061F. The ARS-2051F/5501F/5501H/5503M/5503H/ 2055PF/5505E/5505M/5505H/5509M/2061F are standalone 1-to-1, 1-to3, 1-to-5, 1-to-9, and 1-to-11 SATA HDD duplicators. All are equipped with an LCD display and touch buttons so HDD data can be duplicated quickly and conveniently without using a computer. This makes them well suited for backing up personal and business data. The IT industry can also use them for small-scale data duplication.

In the past, users looking to duplicate data on to multiple HDDs usually had to start up the computer then use writing software like Ghost. This means time has to be spent on learning to use the software and then using it to copy data. ACARD's answer is the SATA HDD Duplicator series that offers fast data backup.

1.2 Features

- SATA-to-SATA HDD duplicators
- Completely standalone SATA HDD duplicator with no additional hardware or software required
- Support for high-speed 1-to-1 (ARS-5501F/5501H/2051F), 1-to-3 (ARS-5503M/5503H), 1-to-5 (ARS-2055PF/5505E/5505M/5505H), 1-to-9 (ARS-5509M) or 1-to-11 (ARS-2061F) HDD duplication
- User-friendly interface with LCD information display
- Offers a range of options that extend the product's applications

1.3 Specifications

- ACARD SoC processor
- 8MB (ARS-2051F), 32MB (ARS-5501F/5501H), 64MB (ARS-2055PF) or 128MB (ARS-5503M/5503H/5505E/5505M/5505H/5509M/2061F) SDRAM memory
- 2 SATA interfaces (ARS-5501F/5501H/2051F), 4 SATA interfaces (ARS-5503M/5503H), 6 SATA interfaces (ARS-2055PF/5505E/5505M/5505H), 10 SATA interfaces (ARS-5509M), 12 SATA interfaces (ARS-2061F)
- 2 x16 LCD display
- Thin film 4 button controls
- 256KB (ARS-2051F), 512KB (ARS-5501F/5501H), 1024KB (ARS-2055PF/2061F/5503M/5503H/5505E/5505M/5505H/5509M) of FLASH memory for Copy Code
- Firmware upgradable via CD/DVD/HDD/USB port
- Power – Voltage: 5V±5%
  Current: 1.5A (max.)
- Environment – Operating: 0ºC~60ºC
  Non-Operating: -20ºC~85ºC
- Humidity - 15%~90%
- Dimensions – 150mm (W) x 42mm (H) x 150mm (D)

1.4 Package & Component

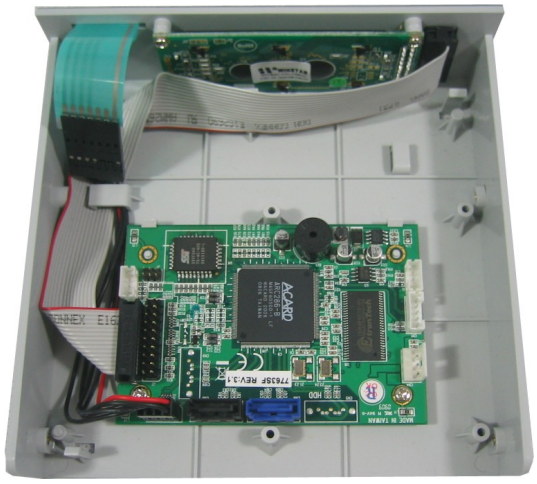
- ARS-2051F/ARS-5501F/ARS-5501H/ARS-5503M/ARS-5503H/ARS-2055PF/ARS-5505E/ ARS-5505M/ARS-5505H/ARS-5509M/ARS-2061F x 1
- Quick Installation Guide x 1
- Support CD x 1
- SATA Cable x 2 (5501F/2051F/5501H), SATA Cable x 4 (5503M/5503H), SATA Cable x 6(2055PF/5505E/5505M/5505H), SATA Cable x 10 (5509M), SATA Cable x 12 (2061F)
- USB Cable x 1 (Not for 2051F/2055PF/2061F PCB:5.2)
- Screw Bag x 1

Chapter 2 Installation

Please verify that the product includes all required accessories and the necessary equipment are available before installation.

2.1 Install ARS-2051F

The ARS-2051F is pictured below.

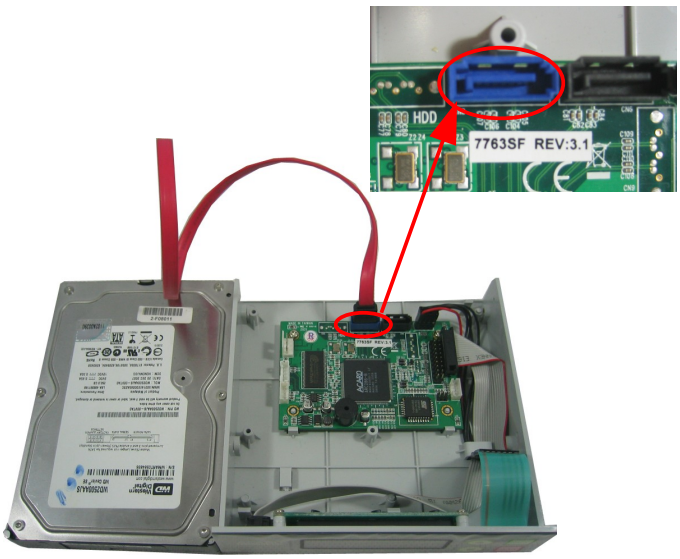


Before Installation

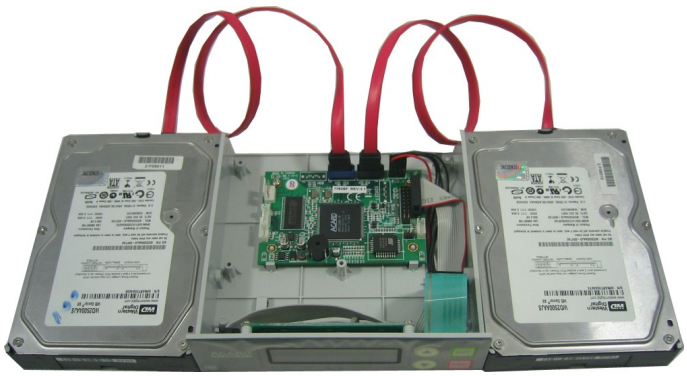
Before connecting the power, verify that the local power supply voltage matches the product. Prepare 1 Source HDD for the SATA port and 1 Target HDD. The capacity of the target HDDs must be equal or higher than the source HDD. The ARS-2051F supports two SATA connections – CN8 is the blue port (Source) and CN6 is the black port (Target). Please refer to the manufacturers' instructions for further details. Please also make sure that the PSU supplies enough power.

Installation Procedure

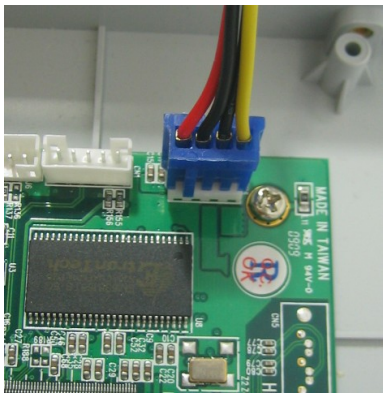
1. Connect the source HDD with the SATA cable to the CN8 blue port on the ARS-2051F



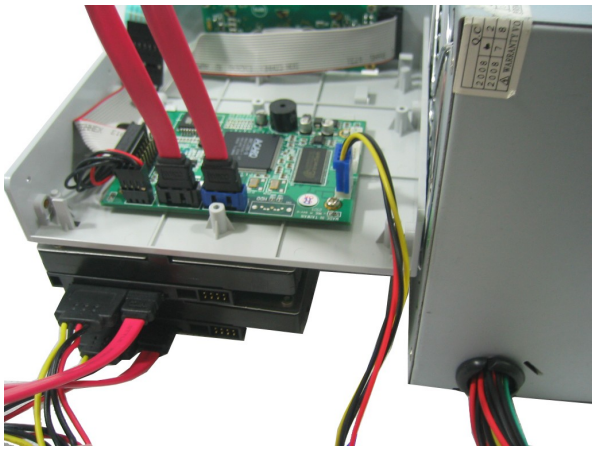
2. Connect the target HDDs with the SATA cable to the black port (CN6) on the ARS-2051F



3. Connect the power cable to CN4 (small 4P power port) on the ARS-2051F

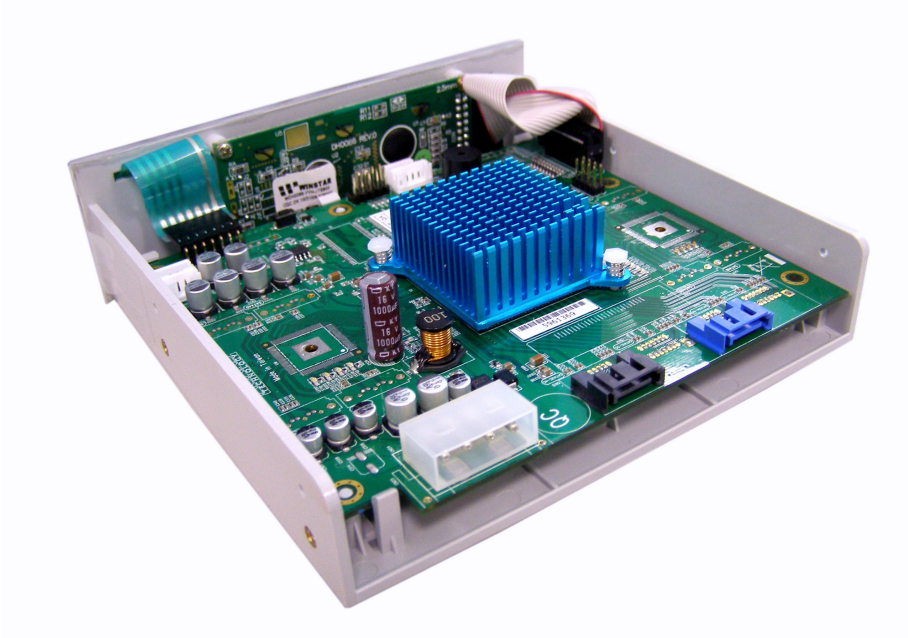


4. Shown below is an ARS-2051F with all the equipments properly wired



2.2 Install ARS-5501F / 5501H

The ARS-5501F / 5501H is pictured below.

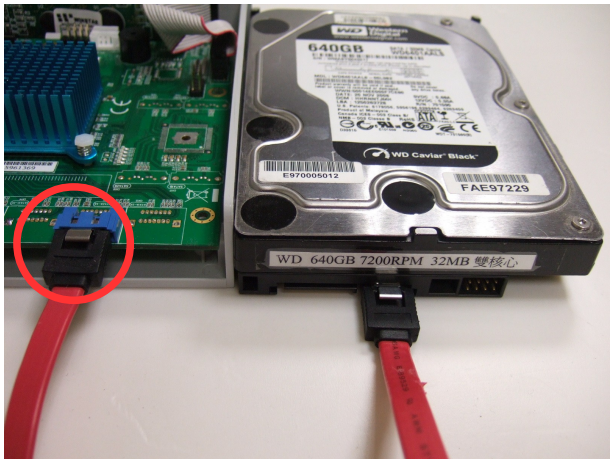


Before Installation

Before connecting the power, verify that the local power supply voltage matches the product. Prepare 1 Source HDD for the SATA port and 1 Target HDD. The capacity of the target HDDs must be equal or higher than the source HDD. The ARS-5501F/5501H supports two SATA connections – CN13 is the blue port (Source) and CN15 is the black port (Target). Please refer to the manufacturers' instructions for further details. Please also make sure that the PSU supplies enough power.

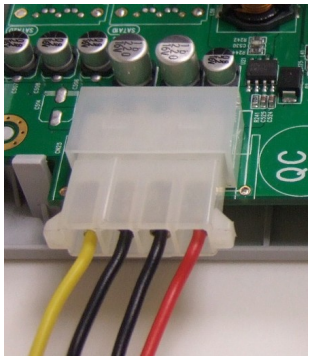
Installation Procedure

1. Connect the source HDD with the SATA cable to the blue port (CN13) on the ARS-5501F/5501H

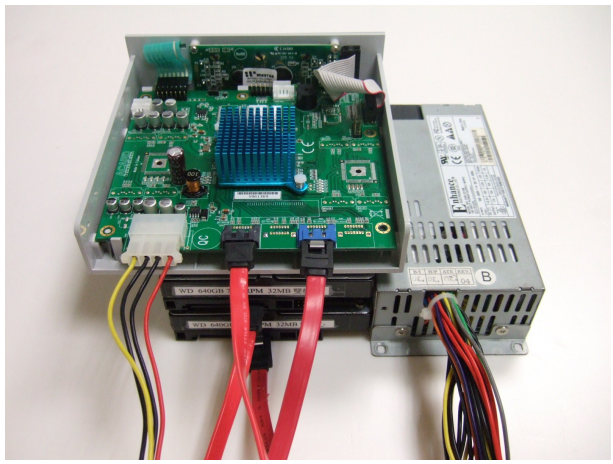


2. Connect the target HDDs with the SATA cable to the black port (CN15) on the ARS-5501F/5501H

3. Connect the power cable to CN24 (4P power port) on the ARS-55011F/5501H



4. Shown below is an ARS-5501F/5501H with all the equipments properly wired



2.3 Install ARS-5503M / 5503H

The ARS-5503M / 5503H is pictured below.

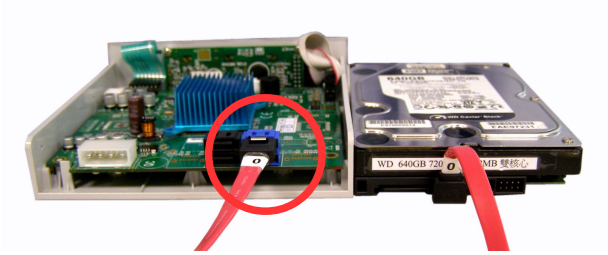
ARS-5503M

ARS-5503H

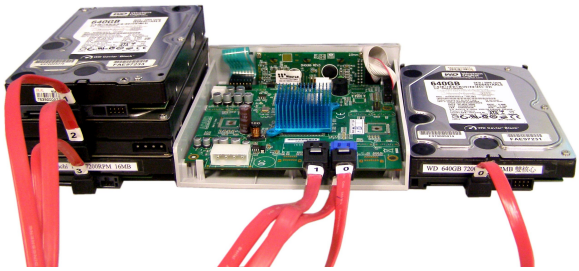
Before Installation

Before connecting the power, verify that the local power supply voltage matches the product. Prepare 1 Source HDD for the SATA port and 3 Target HDDs. The capacity of the target HDDs must be equal or higher than the source HDD. The ARS-5503M/5503H support four SATA connections – the blue port (Source) and the black port (Target). Please refer to the manufacturers' instructions for further details. Please also make sure that the PSU supplies enough power.

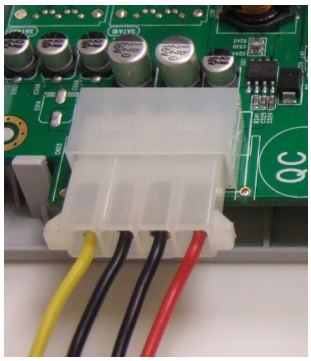
1. Connect the source HDD with the SATA cable to the CN13 (UP) / CN14 (UP) blue port on the ARS-5503M/5503H



2. Connect the target HDDs with the SATA cable to the black port on the ARS-5503M/5503H



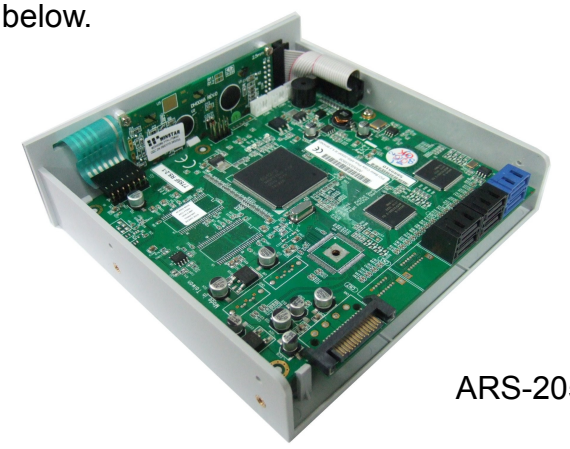
3. Connect the power cable to CN24 (4P power port) on the ARS-5503M/5503H



4. Shown below is an ARS-5503M/5503H with all the equipments properly wired

2.4 Install ARS-2055PF

The ARS-2055PF is pictured below.

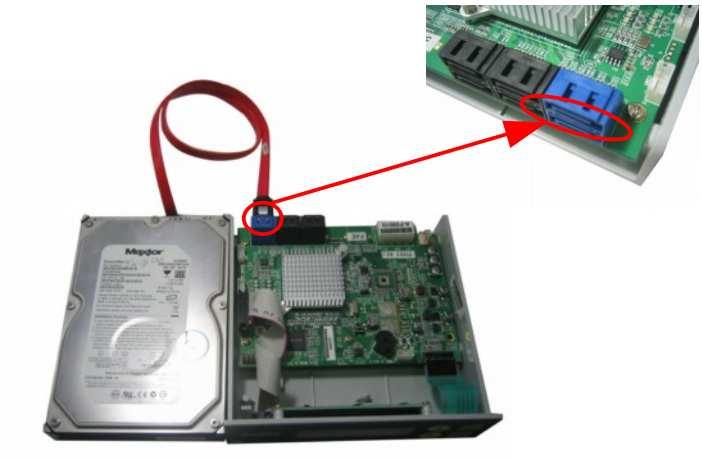


ARS-2055PF

Before Installation

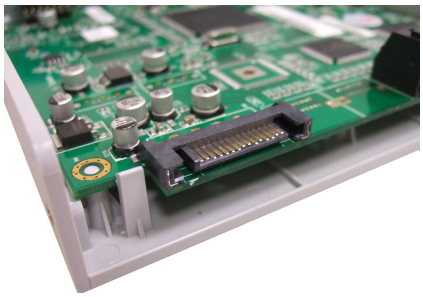
Before connecting the power, verify that the local power supply voltage matches the product. Prepare 1 Source HDD for the SATA port and 5 Target HDDs. The capacity of the target HDDs must be equal or higher than the source HDD. The ARS-2055PF support six SATA connections – the blue port (Source) and the black port (Target). Please refer to the manufacturers' instructions for further details. Please also make sure that the PSU supplies enough power.

1. Connect the source HDD with the SATA cable to the CN5 (UP) blue port on the ARS-2055PF



2. Connect the target HDDs with the SATA cable to the black port on the ARS-2055PF

3. Connect the power cable to CN9 (SATA power port) on the ARS-2055PF

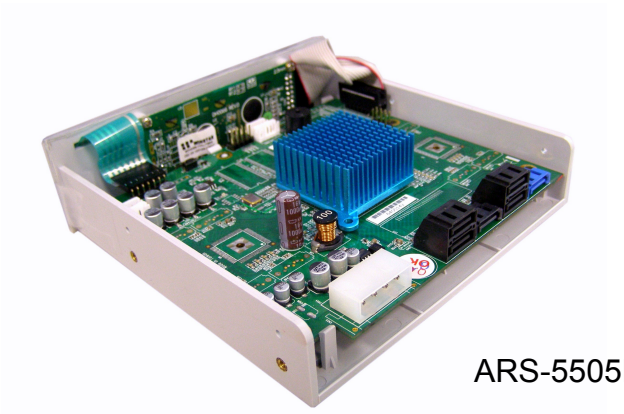


4. Shown below is an ARS-2055PF with all the equipments properly wired

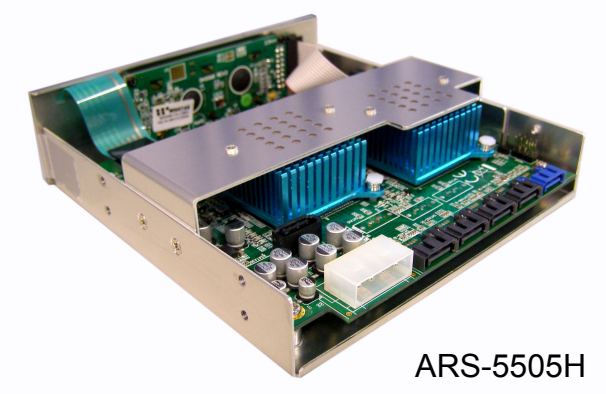
2.5 Install ARS-5505E/5505M/5505H

The ARS-5505E/5505M/5505H is pictured below.

ARS-5505E



ARS-5505M



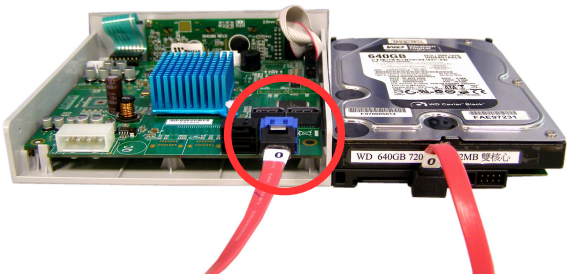
ARS-5505H

Before Installation

Before connecting the power, verify that the local power supply voltage matches the product. Prepare 1 Source HDD for the SATA port and 5 Target HDDs. The capacity of the target HDDs must be equal or higher than the source HDD. The ARS-5505E/5505M/5505H supports six SATA connections – the blue port (Source) and the black port (Target). Please refer to the manufacturers' instructions for further details. Please also make sure that the PSU supplies enough power.

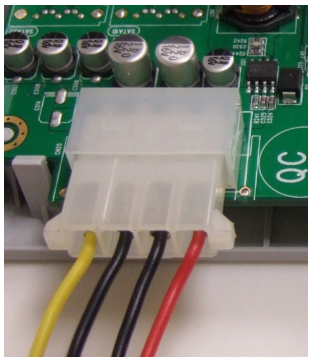
Installation Procedure

1. Connect the source HDD with the SATA cable to the CN12 (UP)/CN13 (UP)/CN12 blue port on the ARS-5505E/5505M/5505H

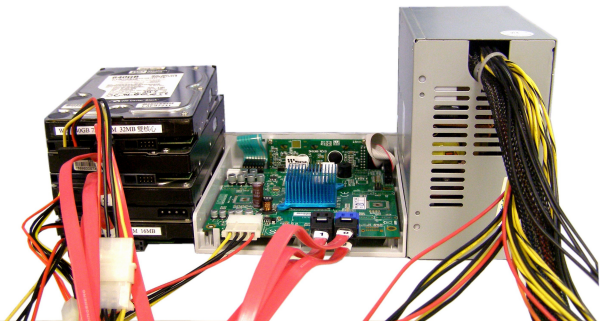


2. Connect the target HDDs with the SATA cable to the black port on the ARS-5505E/5505M/5505H

3. Connect the power cable to CN24 (4P power port) on the ARS-5505E/5505M/5505H



4. Shown below is an ARS-5505E/5505M/5505H with all the equipments properly wired



2.4 Install ARS-5509M

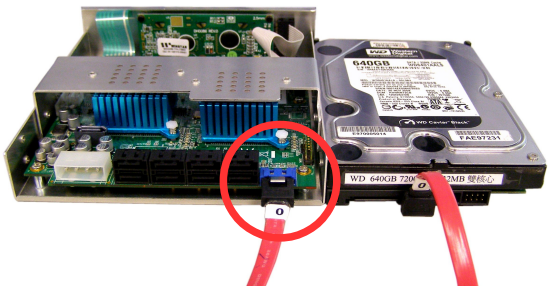
The ARS-5509M is pictured below.

Before Installation

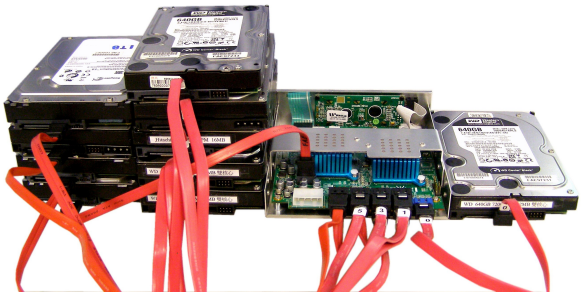
Before connecting the power, verify that the local power supply voltage matches the product. Prepare 1 Source HDD for the SATA port and 9 Target HDDs. The capacity of the target HDDs must be equal or higher than the source HDD. The ARS-5509M supports ten SATA connections – the blue port (Source) and the black port (Target). Please refer to the manufacturers' instructions for further details. Please also make sure that the PSU supplies enough power.

Installation Procedure

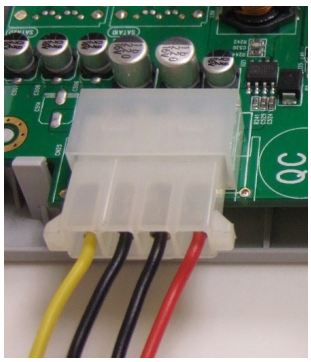
1. Connect the source HDD with the SATA cable to the CN12 blue port on the ARS-5509M



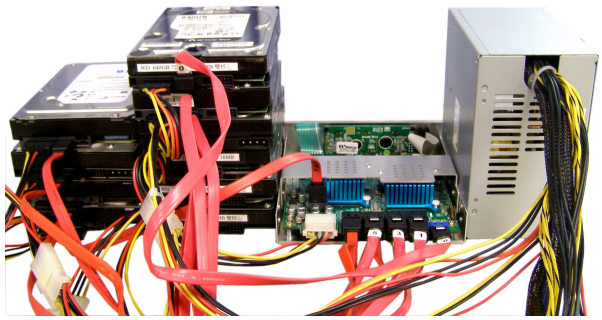
2. Connect the target HDDs with the SATA cable to the black port on the ARS-5509M



3. Connect the power cable to CN24 (4P power port) on the ARS-5509M



4. Shown below is an ARS-5509M with all the equipments properly wired



2.3 Install ARS-2061F

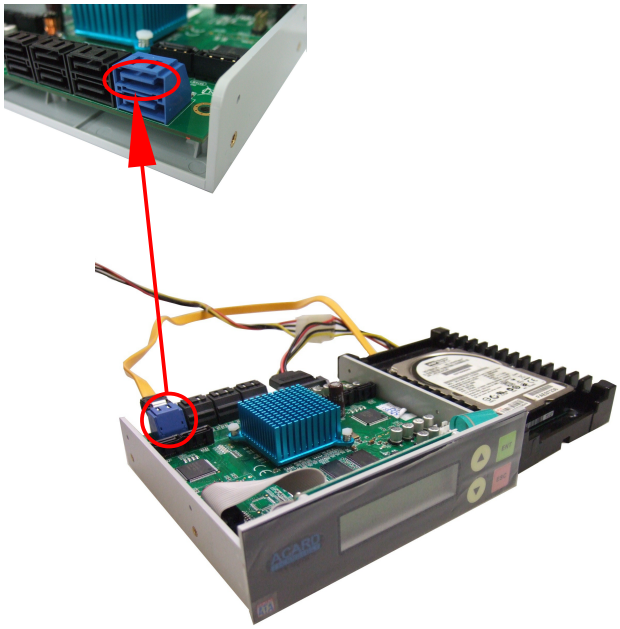
The ARS-2061F is pictured below.

Before Installation

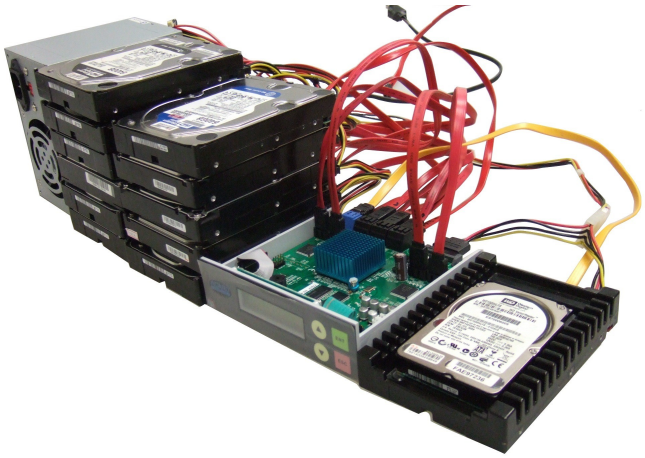
Before connecting the power, verify that the local power supply voltage matches the product. Prepare 1 Source HDD for the SATA port and 11 Target HDDs. The capacity of the target HDDs must be equal or higher than the source HDD. The ARS-2061F supports twelve SATA connections – the blue port (Source) and the black port (Target). Please refer to the manufacturers' instructions for further details. Please also make sure that the PSU supplies enough power.

Installation Procedure

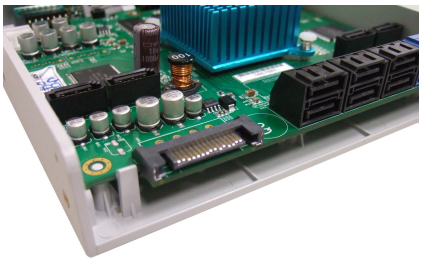
1. Connect the source HDD with the SATA cable to the CN12 (UP) blue port on the ARS-2061F



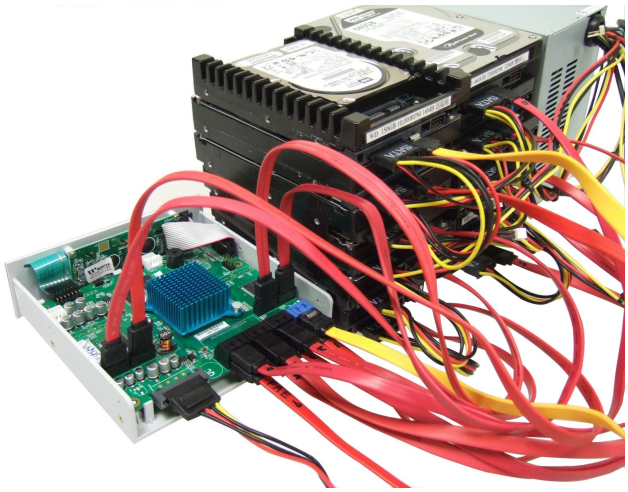
2. Connect the target HDDs with the SATA cable to the black port on the ARS-2061F



3. Connect the power cable to CN24 (SATA power port) on the ARS-2061F



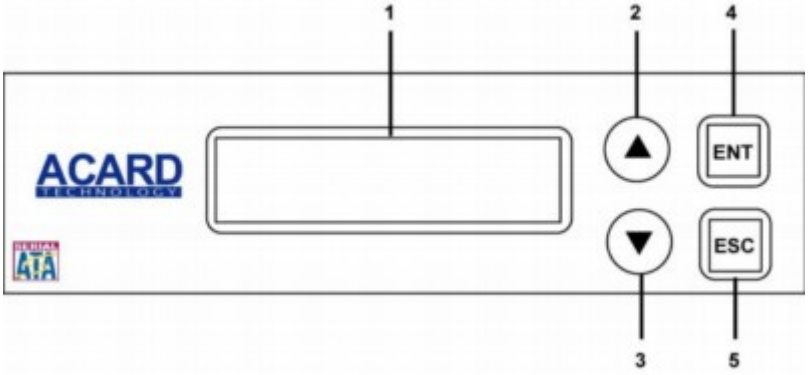
4. Shown below is an ARS-2061F with all the equipments properly wired



Chapter 3 Basic Instructions

3.1 Buttons and LCD

There are four buttons and an LCD on the panel of SATA HDD Duplicator Controller.



1. It shows a function or a message.
2. It's used to scroll up function menus.
3. It's used to scroll down function menus.
4. It's used to execute a function.
5. It's used to cancel a function.

3.2 LCD Configuration Chart

Here we take ARS-5503H to demonstrate.

1

ACARD Technology 5503H Ver: 1.61L

Figure 1 shows the firmware version of ARS-5503H.

2

Initialize SDRAM

Figure 2 shows Initialize SDRAM's status.

3

Detect Drives Please Wait ...

Figure 3 shows Detect Drives's status.

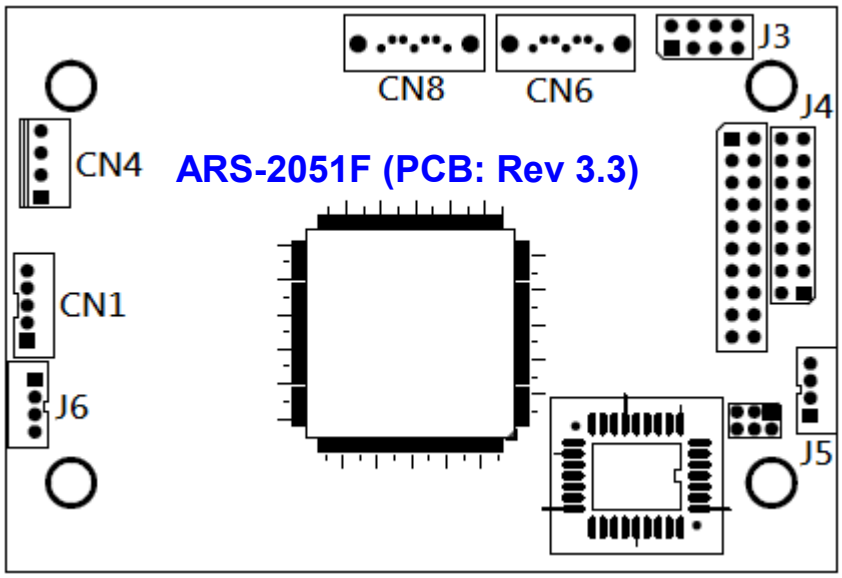
4

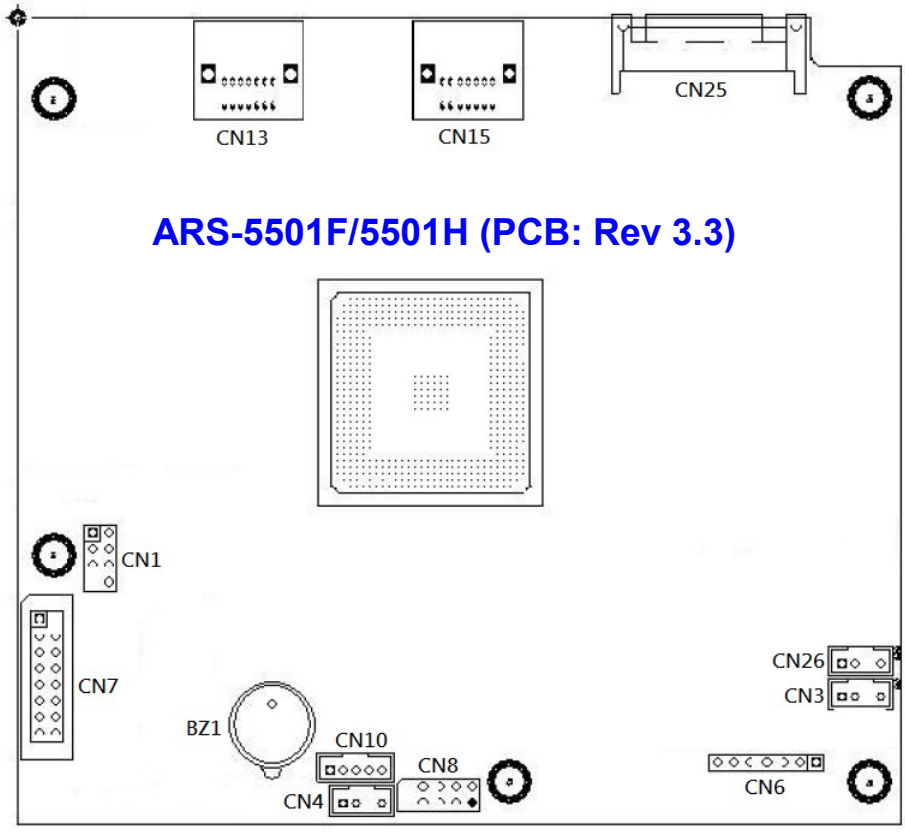
1. Copy HDD HDD: XXX.XGB

Figure 4 shows the first function Copy HDD. There are 8 functions. You can press ▼ to see other functions.

Chapter 4 Board Layout

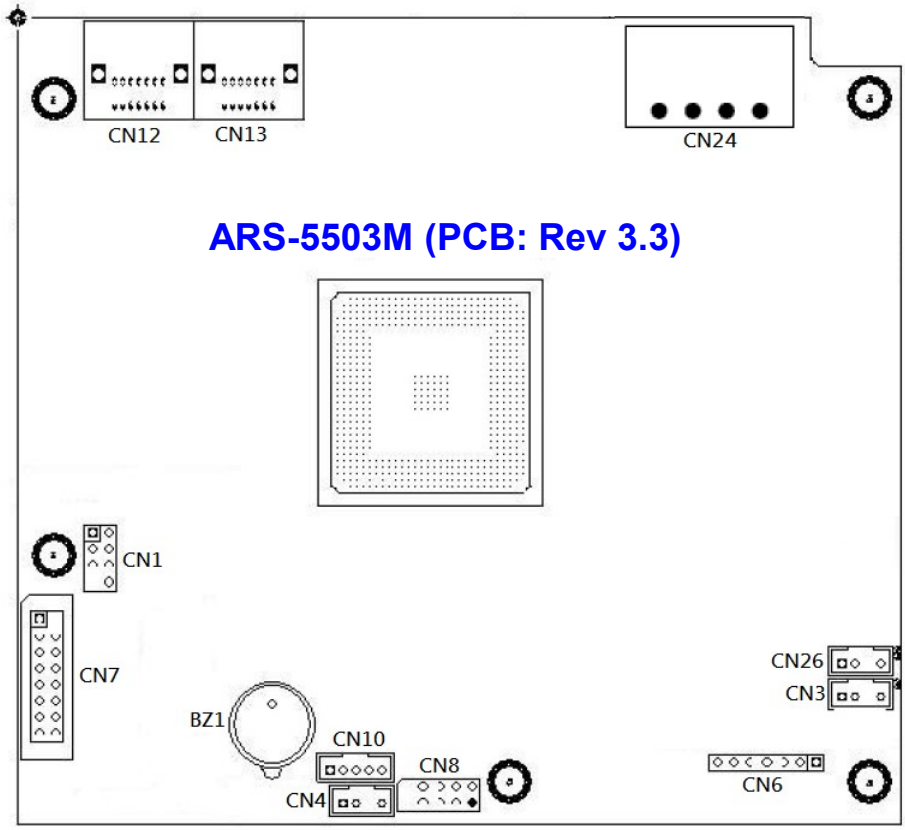
The board layout of ARS-2051F/5501F/5501H is shown as follows.



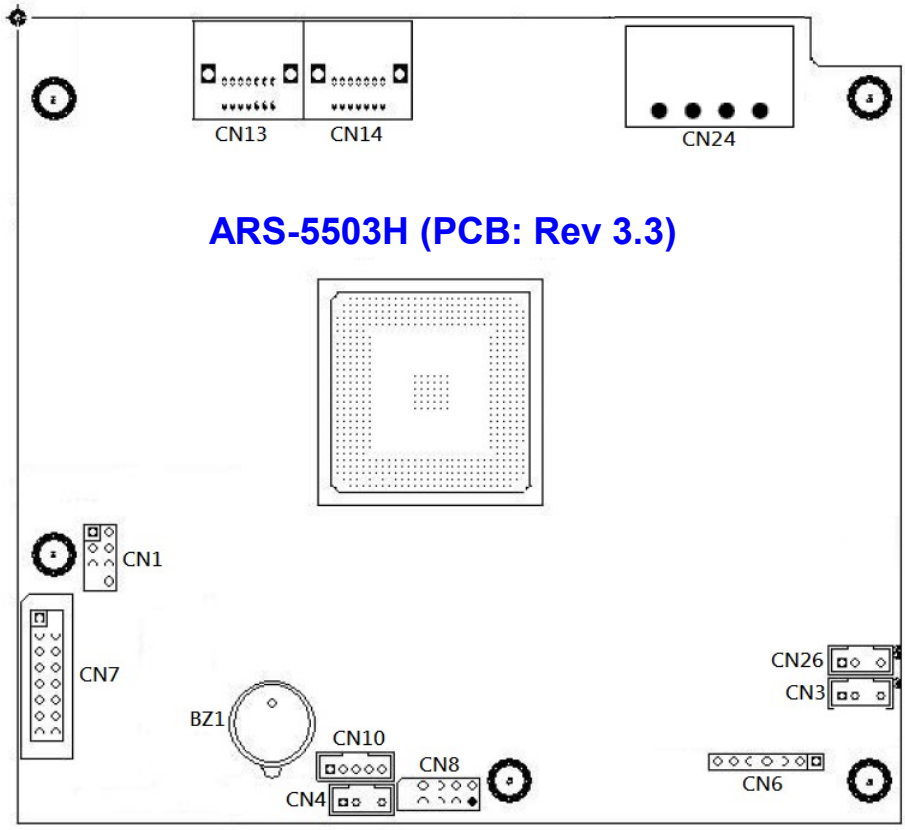


PS: CN8 is USB port for firmware update.

The board layout of ARS-5503M/5503H is shown as follows.

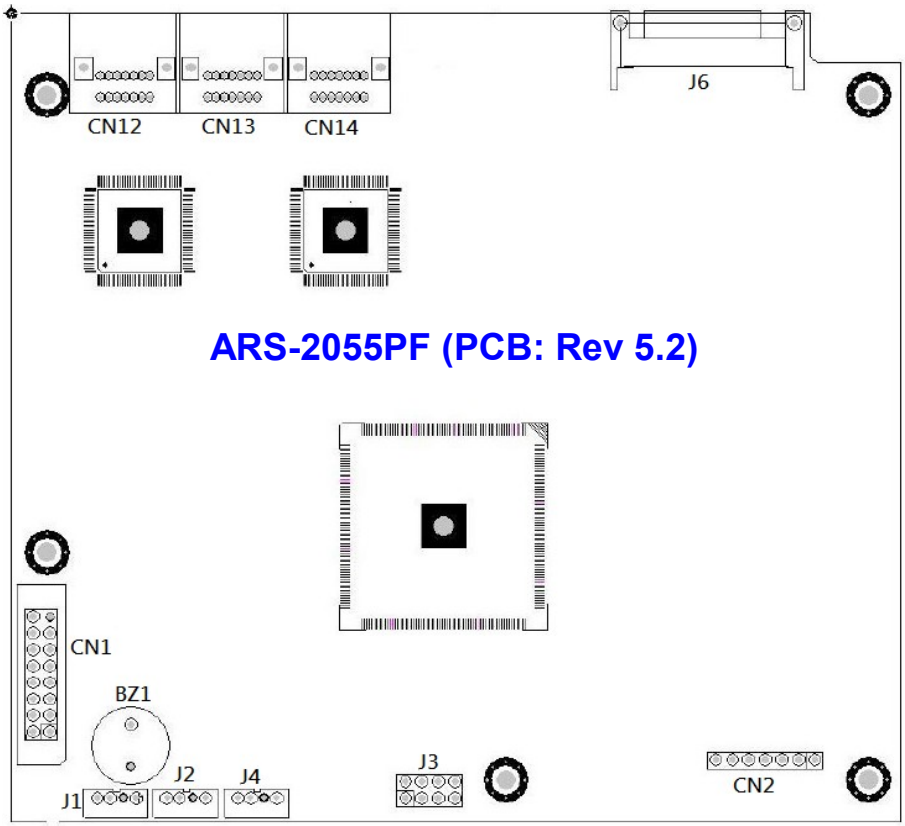


PS: CN8 is USB port for firmware update.

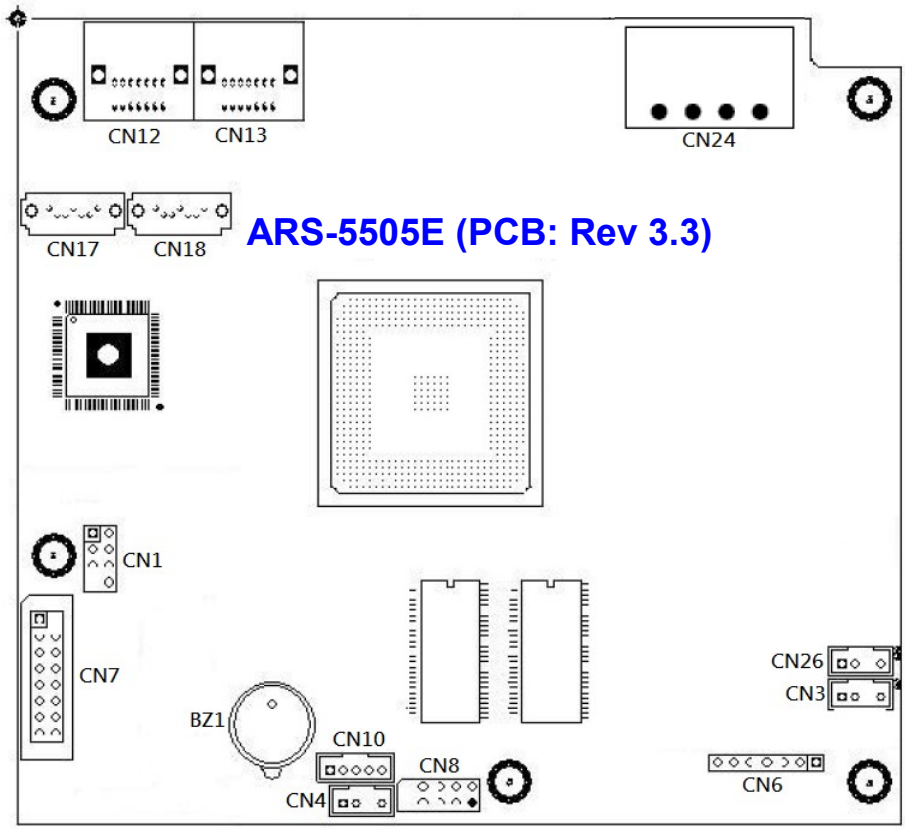


PS: CN8 is USB port for firmware update.

The board layout of ARS-2055PF/5505E/5505M/5505H is shown as follows.

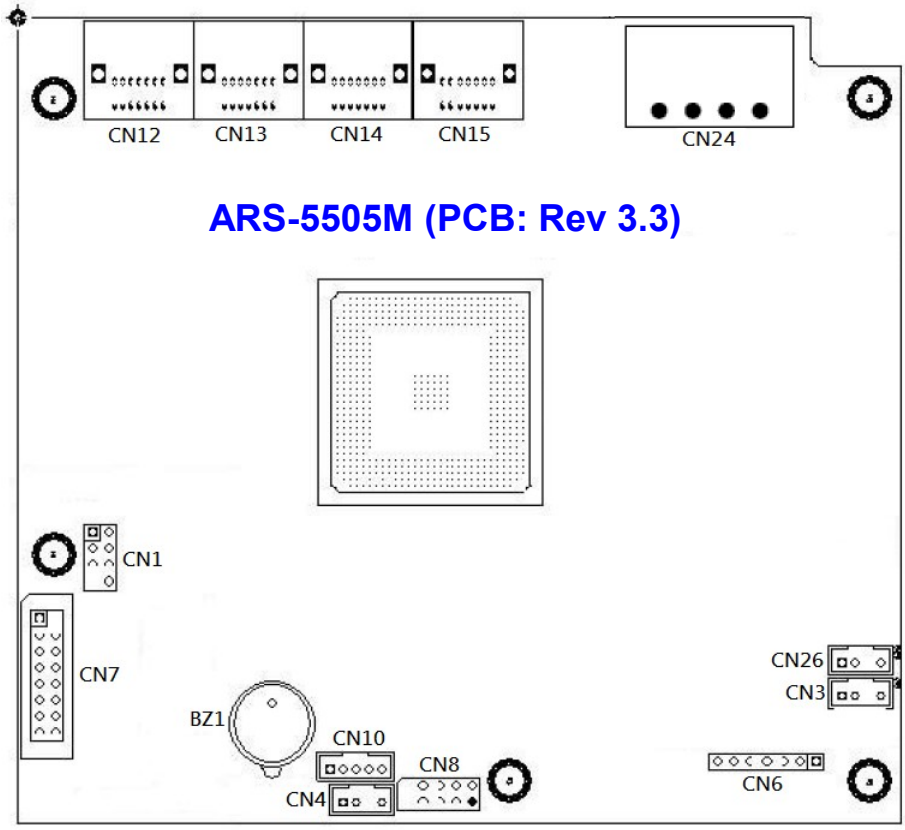


ARS-2055PF (PCB: Rev 5.2)

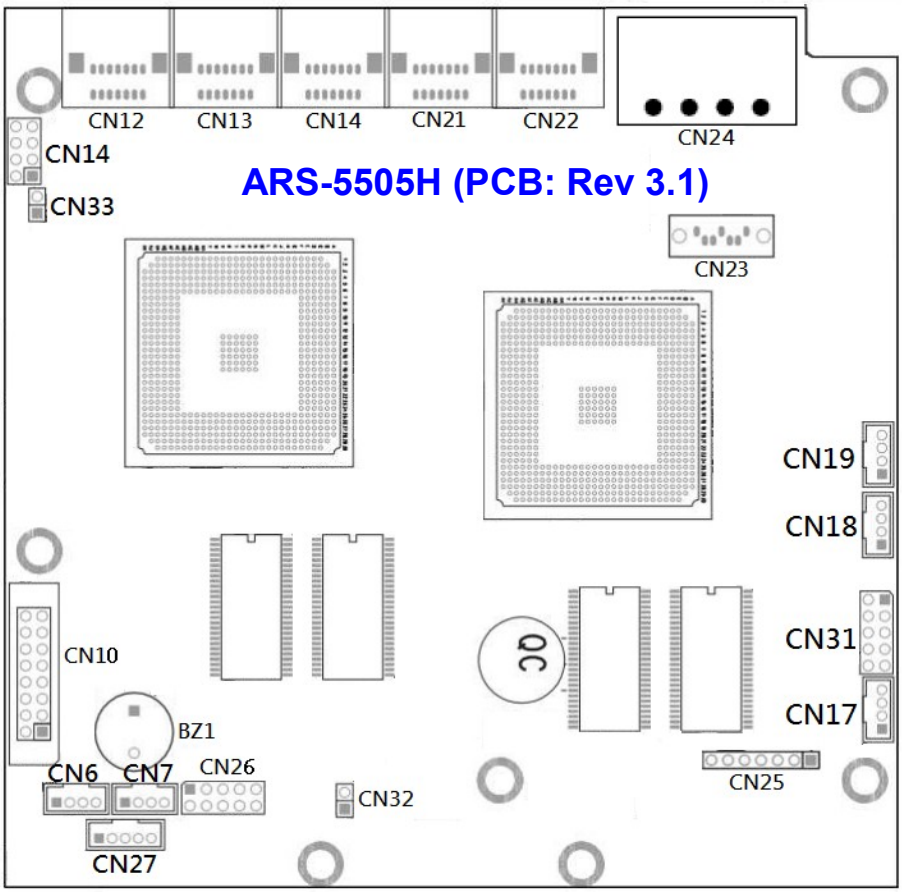


ARS-5505E (PCB: Rev 3.3)

PS: CN8 is USB port for firmware update.

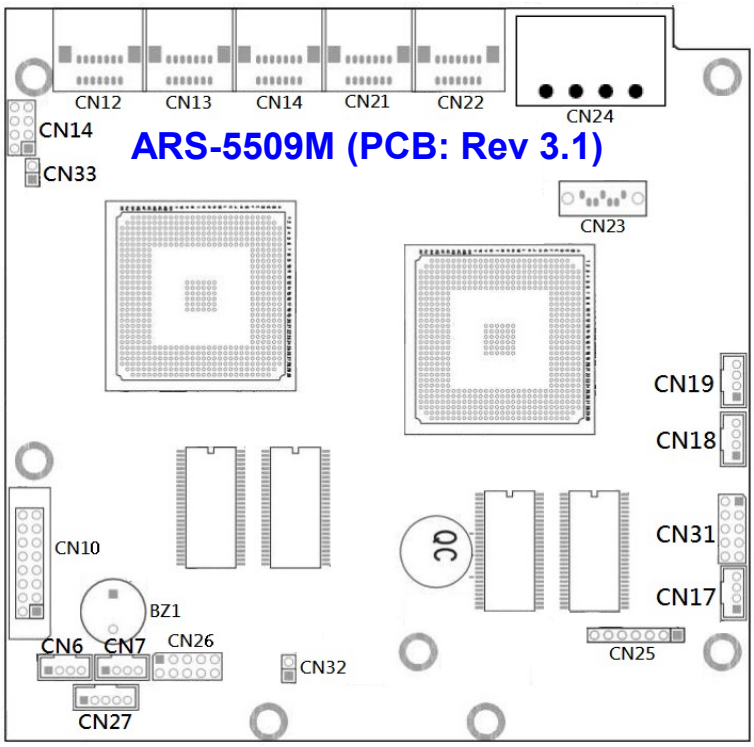


PS: CN8 is USB port for firmware update.



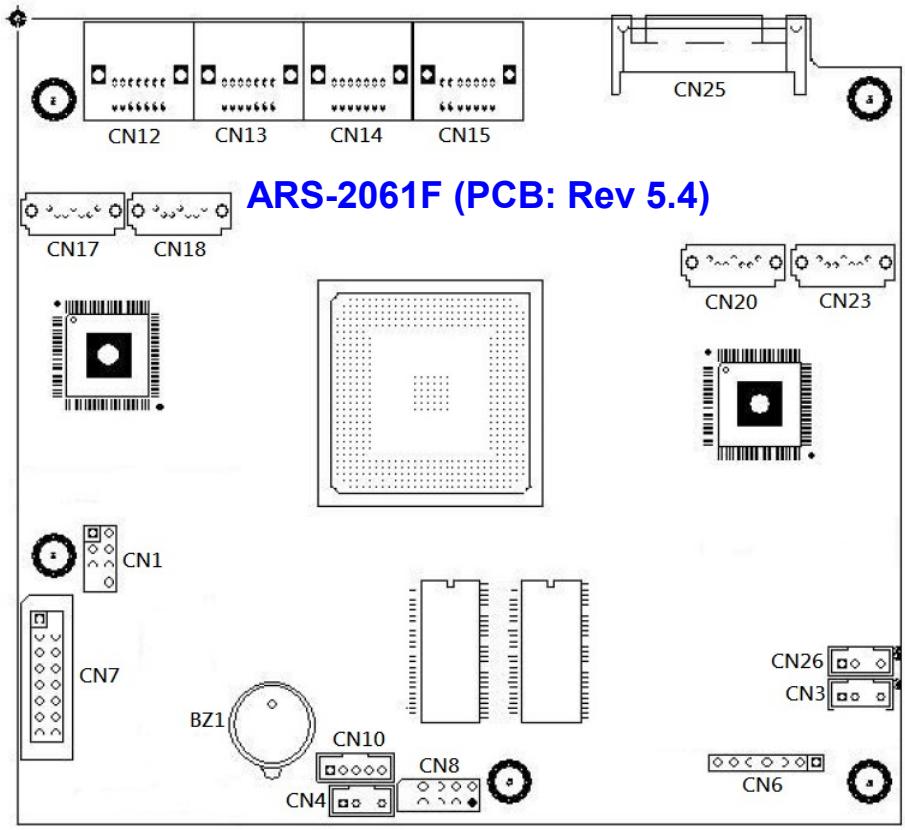
PS: CN26 is USB port for firmware update.

The board layout of ARS-5509M is shown as follows.



PS: CN26 is USB port for firmware update.

The board layout of ARS-2061F is shown as follows.

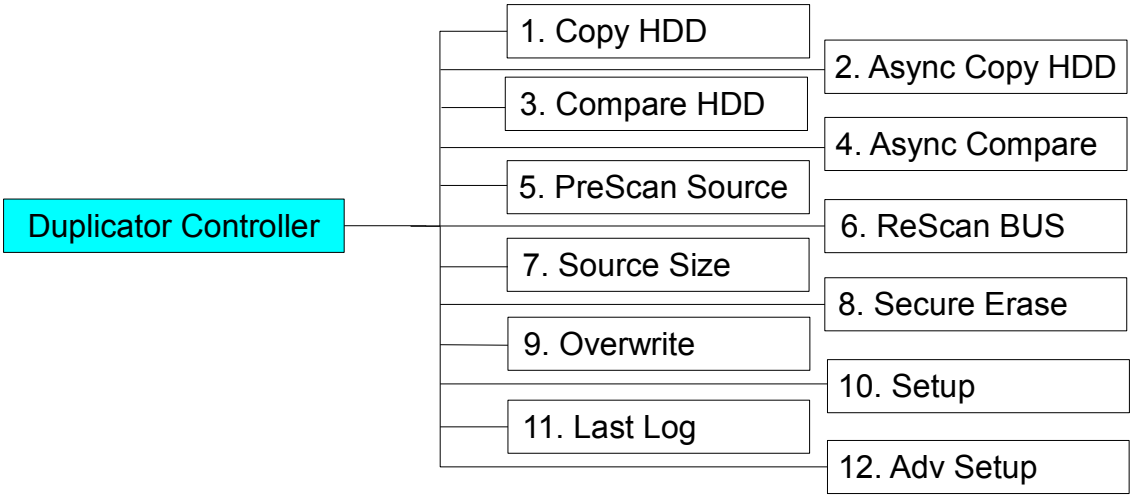


PS: CN8 is USB port for firmware update.

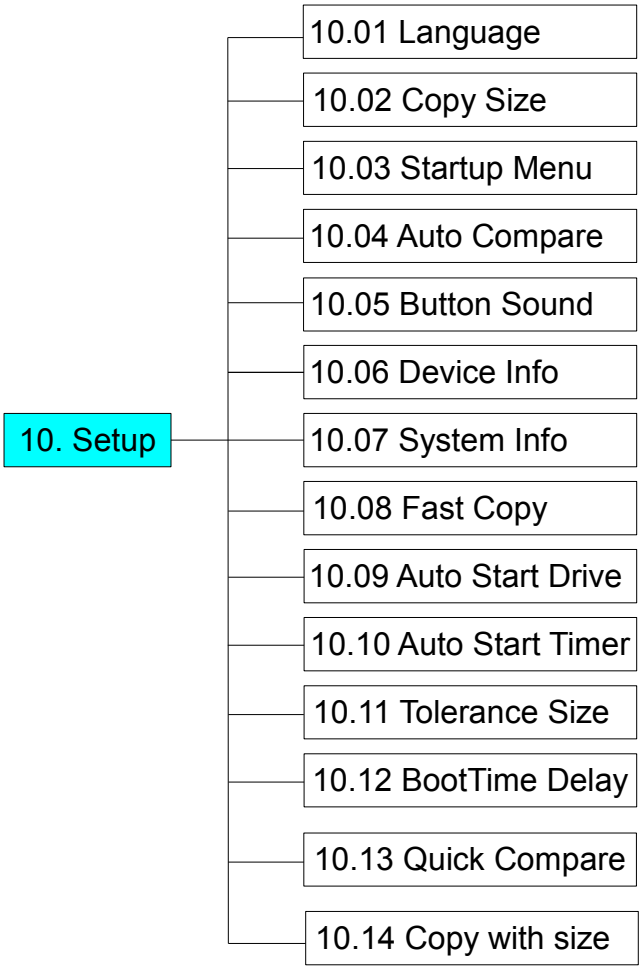
Chapter 5 Functions

The copy controller has 11 functions in total, with the 12th (Adv Setup) being a hidden system function that only appears when the ESC key is pressed for 2 seconds until there is a beep. These are shown below.

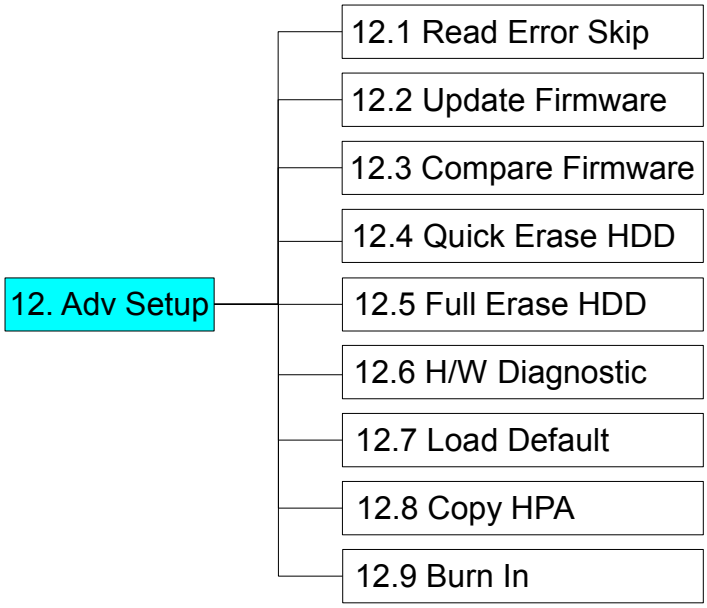
Now let's take ARS-5503H to demonstrate.



In Function#10 there are 14 sub-functions



In Function#12 there are 9 sub-functions



Here we take ARS-5503H to demonstrate.

5.1 Copy HDD

Copy HDD copies data directly from the source hard disk to the target hard disk. Please make sure that the capacity of the target hard disk is equal or larger than the source hard disk.

Choose option 1 from the menu:

```
1. Copy HDD
HDD:4   232.9GB
```

Press **ENT** to begin copy. The system will auto-detect the hard disks and show the following copying info on the LCD.

```
Copy-36MB/s     0%
232.9GB   00:00:00
```

The LCD will show the following info during the copying process: elapsed time, completed percentage. The copy speed, capacity and time will vary depending on the source hard disk. Once the copying process is complete the LCD will display the following results.

```
Copy HDD
OK: 3       Fail: 0
```

5.2 Async Copy HDD (ARS-2051F/5501F/5501H not support)

This option allows when the replication process can increase the extra hard disk devices.

Choose option 2 from the menu:

```
2. Async Copy HDD
HDD:4     232.9GB
```

Press **ENT**. Before the start of the reproduction, if the ARS-5503H to detect the 3rd hard drive capacity is less than source, then the LCD will show the corresponding channel number.

```
3
Space Not Enough
```

And then automatically copies. The LCD will display the following info.

```
Acpy-36MB/s     0%
232.9GB   00:00:00
```

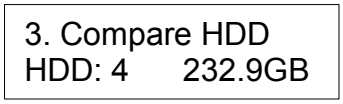
If the replication process to continue to add additional hard disk device, LCD will only show the last completed percentage.
Once the copying process is complete the LCD will display the following results.

```
Async Copy HDD
OK:  3       Fail:  0
```

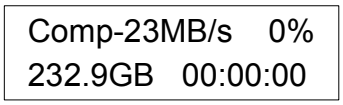
5.3 Compare

Compare HDD is used to see if the data on a source hard disk is identical to the target hard disk after the Copy HD operation.

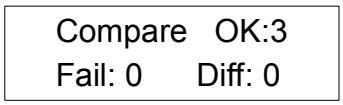
Choose option 3 from the menu:



Press **ENT** to begin the comparison. The LCD will display the following info.



Once the comparison is complete the LCD will display the following info as well as the amount of data on the source hard disk.



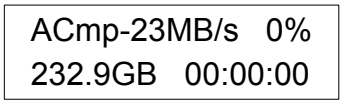
Attention: This is Function 2 of ARS-2051F/5501F/5501H.

5.4 Async Compare (ARS-2051F/5501F/5501H not support)

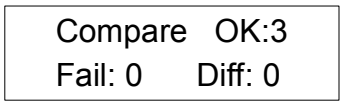
This option allows the comparison process can increase the extra hard disk devices.

Choose option 4 from the menu:

Press **ENT** to begin the async comparison. The LCD will display the following info.



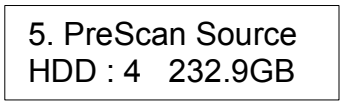
If the comparison process to continue to add additional hard disk device, LCD will only show the last completed percentage.
Once the copying process is complete the LCD will display the following results.



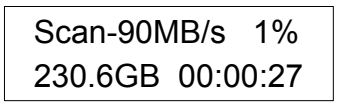
5.5 PreScan Source

PreScan Source is used to check if the source hard disk can be accessed properly. It also tests the read speed.

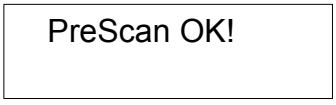
Choose option 5 from the menu:



Press **ENT** to begin scan. The LCD will display the following info



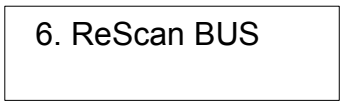
Once the scan is complete, the LCD will display the corresponding results



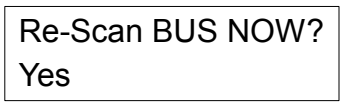
Attention: This is Function 3 of ARS-2051F/5501F/5501H.

5.6 ReScan BUS

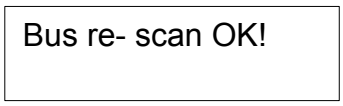
ReScan BUS is used to re-scan all devices on the duplicator.
Choose option 6 from the menu:



Press **ENT** to re-scan hardware. The LCD will display the following info.



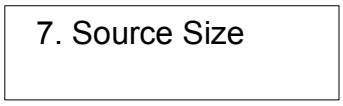
When the scan is complete the LCD will display the following info.



Attention: This is Function 4 of ARS-2051F/5501F/5501H.

5.7 Source Size

Source Size is used to show the capacity message of the source hard disk.
Choose option 7 from the menu:



Press **ENT** and the LCD will show the following info.

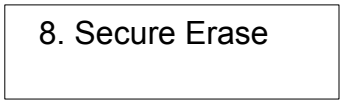
Then press **ENT** and the LCD will show the data's size info.

Attention: This is Function 5 of ARS-2051F/5501F/5501H.

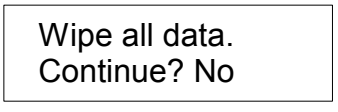
5.8 Secure Erase

Secure Erase is used to do data-erase operations to the hard drive by command order from HDD itself. This function will erase all HDD with 00 character in the tray (included Source tray), please be careful when use it.

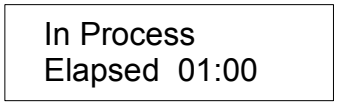
Choose option 8 from the menu:



Press **ENT** to access option. By default it is set to No. Use the Up and Down arrow keys to choose Yes.



Press **ENT** and the LCD will show the following info.

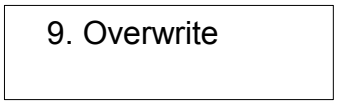


Attention: This is Function 6 of ARS-2051F/5501F/5501H.

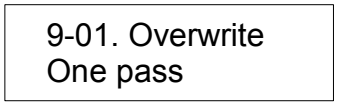
5.9 Overwrite

Overwrite is used to do data-erase operations to the hard drive by command order from controller itself. There are 3 sub-options: One pass (all 00 character), 3 pass (00, ff, random character) and 7 pass 5220.22-M (f6,00, ff, random, 00,ff,random character).This function will erase all HDD in the tray (included Source tray), please be careful when use it.

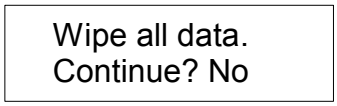
Choose option 9 from the menu:



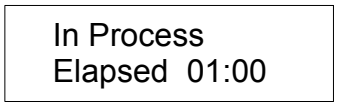
Press **ENT** to access option. By default it is One pass Use the Up and Down arrow keys to choose other options.



Press **ENT** to access option. By default it is set to No. Use the Up and Down arrow keys to choose Yes.



Press **ENT** and the LCD will show the following info.



Attention: This is Function 7 of ARS-2051F/5501F/5501H.

5.10 Setup

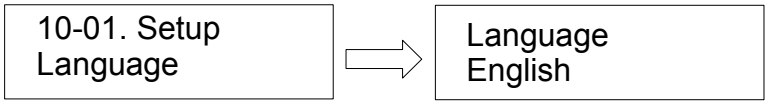
Setup allows various system settings to be changed. There are 13 sub-options: Language, Copy Size, Startup Menu, Auto Compare, Button Sound, Device Info, System Info, Fast Copy, Auto Start Drive, Auto Start Timer, Tolerance Size, BootTime Delay, Quick Compare and Copy with size.

Choose option 8 from the menu:

Attention: This is Function 8 of ARS-2051F/5501F/5501H.

5.10.1 Language

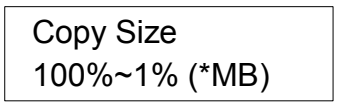
This option is used to select the system's language support. By default this is set to English. Press **ENT** to change the Language settings.



5.10.2 Copy Size

This option is used to specify the size of the source hard disk for simplifying further copying operations.

Press **ENT** and the LCD will display a detailed list of options as shown below



Use the Up and Down arrow keys to choose different copy sizes. The system will offer their corresponding percentages so the user can specify the amount to copy from the source hard disk. Press **ENT** to confirm and save the changes.

5.10.3 Startup Menu

This option allows you to set an option other than "Setup" to be displayed as the first available option on the menu every time you start the system.

Press **ENT** then use the Up and Down arrow keys to choose other options. By default the first menu option is Copy HDD.

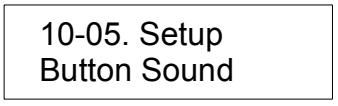
5.10.4 Auto Compare

This option automatically compares the source hard disk with the target hard disk after a copy operation is completed.

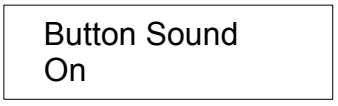
Press **ENT** to access option. By default it is set to Off. Use the Up and Down arrow keys to choose On.

5.10.5 Button Sound

This option is used to control the sound of a button when you press it.



Press **ENT** and the LCD will display the following info. Use the Up and Down arrow keys to choose whether button sound is on or off.

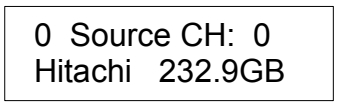


Attention: This is Function 8-06. of ARS-2051F.

5.10.6 Device Info

This option is used to display the details of all hard disks connected to the copy controller.

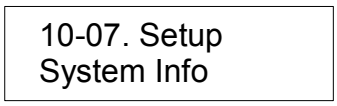
Press **ENT** and the LCD will display each hard disk' information in order as shown below.



Attention: This is Function 8-07. of ARS-2051F.

5.10.7 System Info

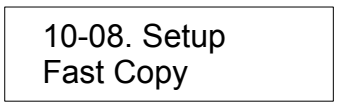
This option displays system information.



Attention: This is Function 8-08. of ARS-2051F.

5.10.8 Fast Copy

This option displays Fast Copy.



Press **ENT** and the LCD will display the following info. Use the Up and Down arrow keys to choose whether fast copy is on or off. (This function currently only effective in FAT, FAT32, NTFS, HFS+, Ext2 and Ext3 partitions.)

Attention: This is Function 8-09. of ARS-2051F, and it does not support HFS+.

5.10.9 Auto Start Drive

This option is used to display to copy automatically once you insert HDD on target port.

Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose 1-11.

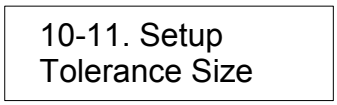
5.10.10 Auto Start Timer

This option is used to display to copy automatically once you insert HDD on target port.

Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose 5 Sec-50 Sec.

5.10.11 Tolerance Size

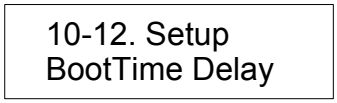
This option is used to do to ensure that when the target is smaller than the source can not be performed when the copy.



Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose 1MB~100MB of source.

5.10.12 BootTime Delay

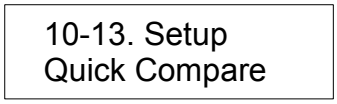
This option is used to to set boot delay time.



Press **ENT** to enter the following figure. The default is 5 sec. Use the Up and Down arrow keys to choose 0~99 sec.

5.10.13 Quick Compare

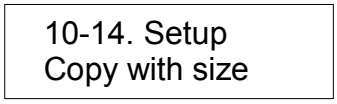
This option is used to set the size of each comparison unit.



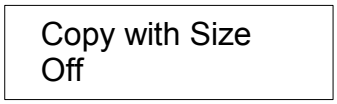
Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose 1 Byte/1K/10K/100K/1MB/10MB/100 Mbytes. (In order to improve the accuracy of pure data can maintain the default settings.)

5.10.14 Copy with size (ARS-5501F not support)

This option is used to set the source hard disk with the target hard disk the same capacity after a copy operation.



Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose On.

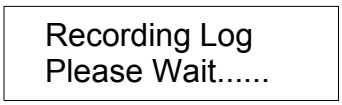


Attention: This is Function 8-05. of ARS-2051F.

5.11 Last Log (ARS-2051F/2055PF/2061F not support)

This function is used to view related messages after the copying function has completed.

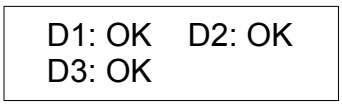
While the copying function is executing or when it has ended, the LCD will display the following screen, “this is currently recording the copying results”.



You can press ▲▼ to select Function#11.

When you enter Function#10, you can see information about the last copying result.

After you have finished viewing the information, you may press any button to exit that screen.



5.12 Adv Setup

Adv Setup offers expert users access to more advanced system settings. It has 9 sub-options: Read Error Skip, Update Firmware, Compare Firmware, Quick Erase HDD, Full Erase HDD, H/W Diagnostic, Load Default, Copy HPA and Burn In. To access this option, hold down the **ESC** key for two seconds until it appears.

Attention: This is Function 10 of ARS-2051F, Function 9 of ARS-5501F.

5.12.01 Read Error Skip

This function sets the system to ignore any errors during the copying process. Normally if there is an error during copying a warning is displayed on the LCD. By using this function, users can also copy a HDD with errors.

Press **ENT** to enter the following screen. By default this option is set to OFF. Use the up and down buttons to enable or disable this option.

Attention: This is Function 10-02. of ARS-2051F.

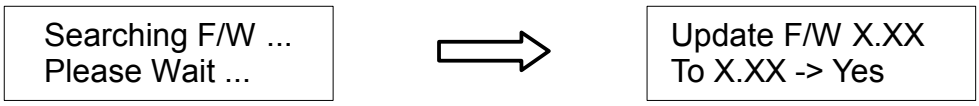
5.12.02 Update Firmware

This function is used to update the system's firmware. Download the latest version of the firmware from the Internet at www.acard.com then write it on to a blank CD/DVD/HDD/USB.

Shut down the HDD clone. Restart the system and insert the CD/DVD/HDD/USB port with the latest version of the firmware into the media.

Press **ENT** and the system will begin scanning for a new firmware version. If found, this will be displayed on the LCD as shown below.

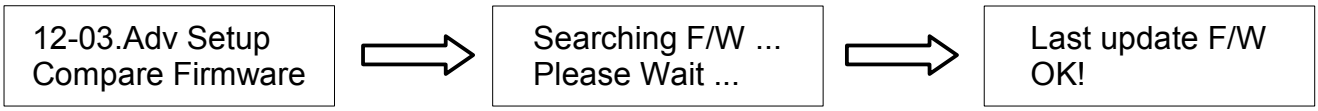
Press **ENT** again to begin updating. If the upgrade is successful the system will restart automatically.



Attention 1: This is Function 10-03. of ARS-2051F.
Attention 2: USB update for some models only, please see page 38 “Appendix B” for more information.

5.12.03 Compare Firmware

This function is used to compare the current system firmware version with the new version the user is upgrading to. This ensures that the downloaded firmware is the latest version. The message "Last update F/W" indicates that it is the latest version.



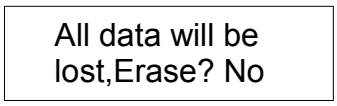
Attention: This is Function 10-04. of ARS-2051F.

5.12.04 Quick Erase HDD

This function is used to quickly erase all data on the target HDD with “00” character. Please backup any important data before using this function.

Press **ENT** to enter the following screen. Use the Up and Down buttons to select the HDD to erase.

Press **ENT** again and the LCD will prompt you to confirm the erase operation.



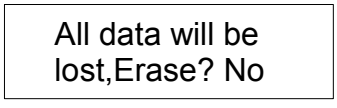
Attention: This is Function 10-05. of ARS-2051F.

5.12.05 Full Erase HDD

This function is used to full erase all data on the target HDD with “00” character. Please backup any important data before using this function.

Press **ENT** to enter the following screen. Use the Up and Down buttons to select the HDD to erase.

Press **ENT** again and the LCD will prompt you to confirm the erase operation.



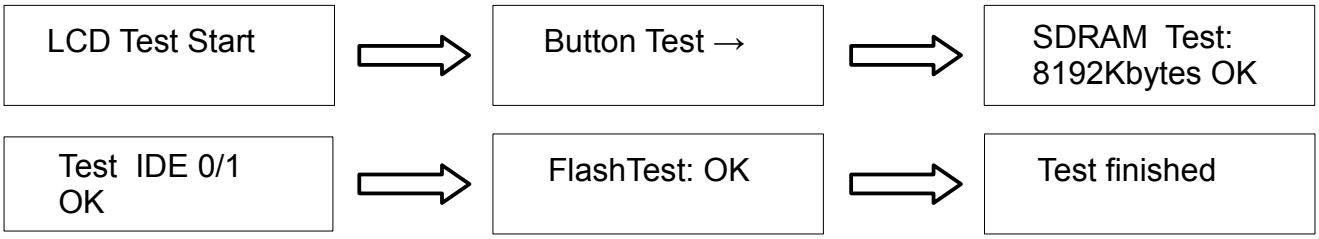
5.12.06 H/W Diagnostic

Press **ENT** to enter the following screen. This function is used to check that the system is operating normally.

```
12-06.Adv Setup
H/W Diagnostic
```

Press **ENT** again to enter the following screen. The LCD will cycle through the test categories as they are performed. The LCD display is tested first, the control panel is tested next (requires manual operation), then followed by the system's internal diagnostics, hardware connection test then the RAM and SD Flash test. All test results are shown on the LCD. This is a simple way to verify that the system is operating normally.

Press **ENT** and the system will begin the tests as shown below.



Once the system diagnostics have been completed the "Test finished" message will appear on the LCD.

Attention: This is Function 10-06. of ARS-2051F.

5.12.07 Load Default

Press **ESC** to return to the main menu then use the **ENT** button to select. This function resets all settings to their factory default. This function helps the system recover from errors caused by an illegal operation.

```
12-07.Adv Setup
Load Default
```

Press **ENT** to enter the following screen. Use the Up and Down buttons to confirm reset to factory defaults.

```
Load Default
Config? Yes
```

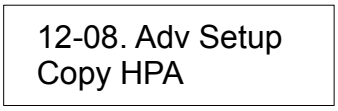
If Load Default OK, this will be displayed on the LCD as shown below.

```
Load Default
Ok
```

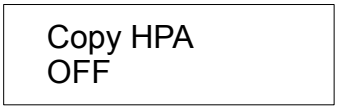
Attention: This is Function 10-07. of ARS-2051F.

5.12.08 Copy HPA

If this function is set to "ON", the system will completely copy the data in a source HDD's host protected area.



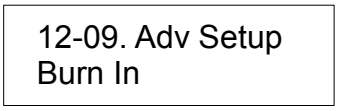
The default is "OFF". Use the **ENT**, Up and Down buttons to change this to "On".



Attention: This is Function 10-10. of ARS-2051F.

5.12.09 Burn In (ARS-2051F not support)

This function is used to burn test the system reliability.



Press **ENT** to enter the following screen.

Use the Up and Down buttons to choose Compare, Async Copy & Cmp and Async Compare, then press **ENT** to confirm.

5.12.10 Detect HDD Delay (ARS-2051F Only)

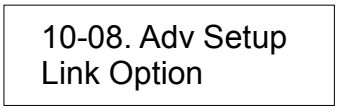
This function is used to set the time interval between the system's re-scans of all connected HDD devices.

Press **ENT** and the LCD will show the following info.

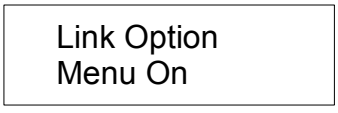
Press **ENT** then use the Up and Down buttons to choose different time settings (1~60 sec)

5.12.11 Link Option (for USB mode) – requires AEC-4420DX (ARS-2051F Only)

This function is used to decide if 7. USB Mode will be shown in the main menu as pictured below.



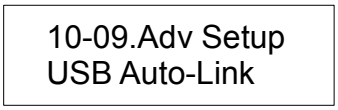
Press **ENT** and the LCD will display the available options as shown below. The default is "Menu On" and 9. USB Mode will appear in the main menu.



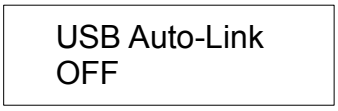
If set to "OFF" using the Up and Down buttons, the 9. USB Mode option will not appear in the main menu.

5.12.12 USB Auto-Link – requires AEC-4420DX (ARS-2051F Only)

This function sets the ARS-2051F to immediately enter USB mode on startup. This allows direct control via PC as shown below.

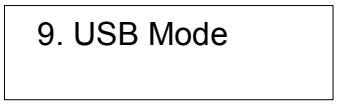


Press **ENT** and the LCD will display the available options as shown below. The default is "OFF".



5.13 USB Mode (ARS-2051F only)

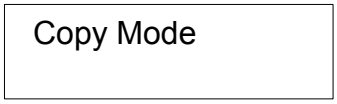
This option allows a copy controller connected to the host computer's USB port to be operated from the PC.
Choose option 9 from the menu:



Press ENT and the LCD will display the corresponding information as shown below.

Use the Down arrow to select YES then press **ENT** again to switch to USB Mode. The LCD will display the following info.

Now press **ENT** to switch to stand-alone mode. The LCD will display the following info.



Chapter 6 Basic Troubleshooting

6.1 LCD

If the LCD blank after the device is turned on, check that the power cable is properly connected and that the power supply is on.

6.2 Error Message

When the system is running a copy operation or hardware diagnostics, if the operation is manually terminated by pressing ESC an error message will be shown by the LCD. This may lead to an illegal operation and cause the device to stop reminding. If this happens, the device must be restarted.

6.3 Hard Disk

If unable to read the hard disk please check that the data and power cables are properly connected.

6.4 Keys

If pressing the keys on the front panel produces no response from the system, the keys may have malfunctioned. Please check the control panel to see if the wiring has come loose.

6.5 Firmware Upgrade

The device can be updated to new versions of firmware through CD/DVD/HDD and USB port (for ARS-5501F/5501H/5503M/5503H/5505E/5505M/5505H/5509M/2061F only). If unable to update the firmware, check that the firmware was downloaded correctly. A failed firmware upgrade may cause the duplicator to become inoperable. If the system is working normally, do not attempt this operation. If the system is already experiencing problems, please contact your distributor for repairs.

6.6 Startup/Shutdown

Do not suddenly turn off the power while the system is performing an operation. After shutting down normally, wait a moment (usually around 5 seconds) before starting the system again so it can run its self-diagnostics.

6.7 About Copy HPA

The HPA (Host Protected Area) is a hidden data region defined in ATA/ATAPI-4. This area is not usually accessible to software. The SATA HDD Duplicate Controller supports the copying of data from this hidden area.

Appendix A Error Messages List

NO#	Error Messages	Description	Applied to
1	Source Drive Not Exist!	No source HDD exist during operating	Copy, Async Copy, Compare, Async Compare, PreScan Source, Source Size, Copy Size, Tolerance Size
2	User Abort!	Cancel operating	Any function and any time
3	No Drive Exist	No HDD exist during operating	Device Info
4	X Space Not Enough Target Drive Space Not Enough	When source capacity is small than target	Copy, Compare
5	X Space Not Enough Target Drive Fail!	When source capacity is small than target	Async Copy, Async Compare
6	PreScan Fail	Lose SATA connection during copy or bad sector on HDD	PreScan Source
7	Source Drive Read Fail!	Lose source SATA connection on source port during copy or bad sector on source HDD	Copy, Async Copy, Compare
8	Target Drive Write Fail!	Lose target SATA connection on target port during copy	Copy
9	Target Drive Read Fail!	Lose target SATA connection on target port during comparing	Compare
10	Target Drive Fail!	Lose target SATA connection on target port during async comparing	Async Copy, Async Compare
11	Target Drive Not Exist!	No HDD exist during operating	Overwrite
12	One pass One pass failed	Lose SATA connection on SATA port during Overwrite	Overwrite
13	3 pass pass 1 failed	Lose SATA connection on SATA port during Overwrite	Overwrite
14	7 pass 5220.22-M pass 1 failed	Lose SATA connection on SATA port during Overwrite	Overwrite

If you hear the warning signal while the copying function is executing (a beep every 5 seconds), the LCD screen will display the problem status; you may press any button to return to the copy progress screen.

Appendix B Firmware Update via HDD / USB

1. HDD Update

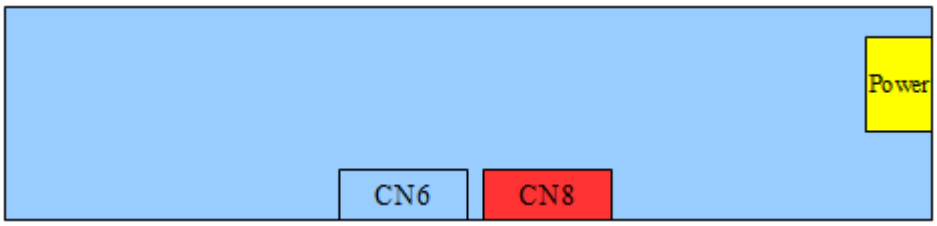
1. Create a 50MB partition (FAT/FAT32/NTFS) HDD.
2. Copy the latest of firmware into HDD.
3. Insert the HDD with firmware to Source port of HDD Duplicator.
4. Execute "Update Firmware" function.

2. USB Update (ARS-2051F / 2055PF / 2061F PCB:5.2 not support)

1. Copy the latest of firmware into USB root directory.
2. Insert the USB with firmware to USB port of HDD Duplicator.
3. Execute "Update Firmware" function.

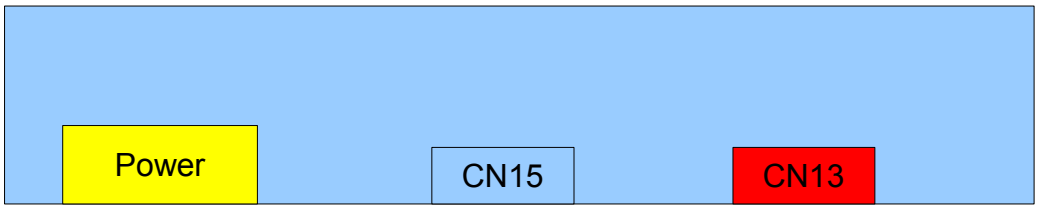
Appendix C SATA Port Locate&Define

1. ARS-2051F, Red for Source Port



SATA Port#	Channel NO#
CN8	0
CN6	1

2. ARS-5501F/ 5501H, Red for Source Port

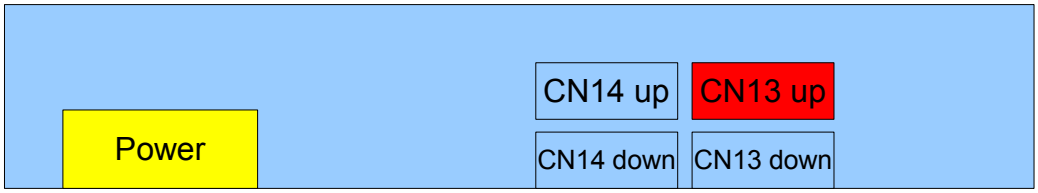


SATA Port#	Channel NO#
CN13	0
CN15	1

3. ARS-5503M, Red for Source Port

SATA Port#	Channel NO#
CN12 up	0
CN12 down	1
CN13 up	2
CN13 down	3

4. ARS-5503H, Red for Source Port

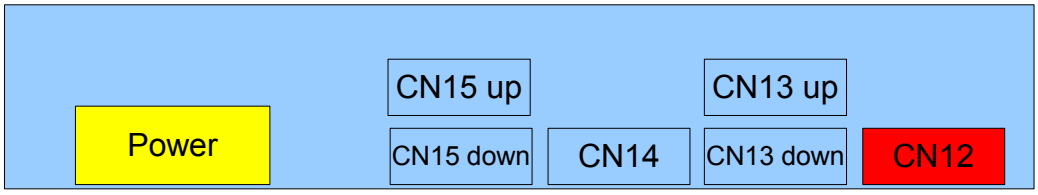


SATA Port#	Channel NO#
CN13 up	0
CN14 up	1
CN13 down	2
CN14 down	3

5. ARS-5505E, Red for Source Port

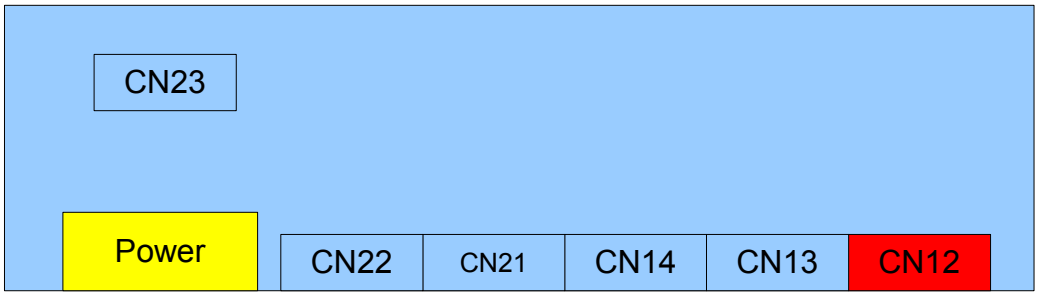
SATA Port#	Channel NO#
CN12 up	0
CN12 down	1
CN13 up	2
CN13 down	3
CN17	4
CN18	5

6. ARS-5505M, Red for Source Port



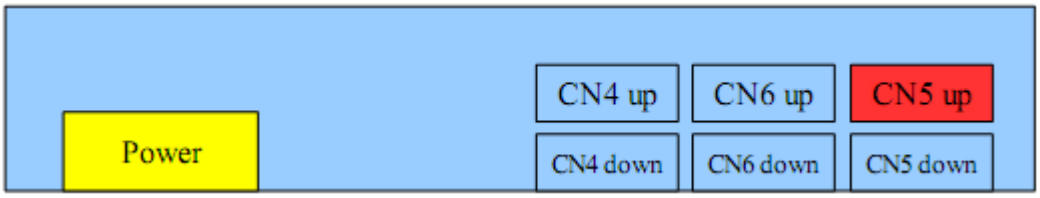
SATA Port#	Channel NO#
CN12	0
CN14	1
CN13 up	2
CN15 up	3
CN13 down	4
CN15 down	5

7. ARS-5505H, Red for Source Port



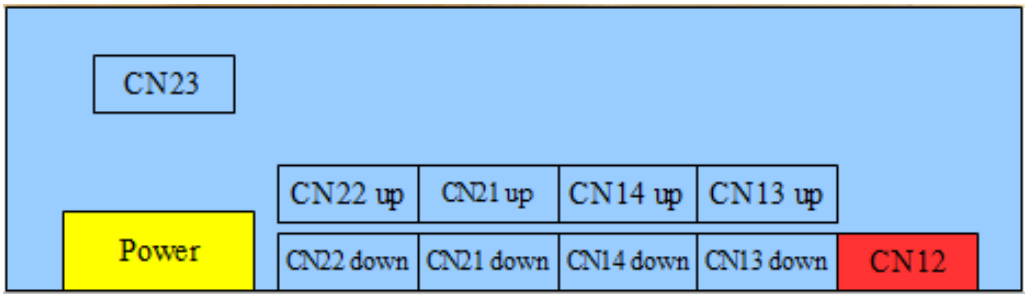
SATA Port#	Channel NO#
CN12	0
CN13	1
CN14	2
CN21	3
CN22	4
CN23	5

8. ARS-2055PF (PCB: 5.2), Red for Source Port



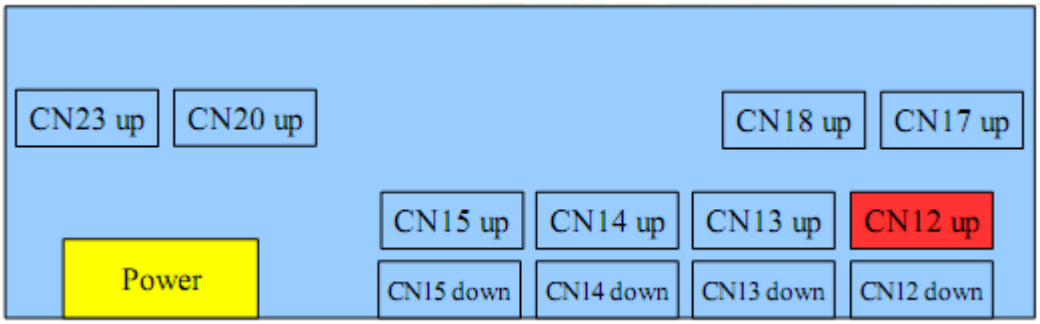
SATA Port#	Channel NO#
CN5 up	0
CN5 down	1
CN6 up	2
CN6 down	3
CN4 up	4
CN4 down	5

9. ARS-5509M, Red for Source Port



SATA Port#	Channel NO#
CN12	0
CN13 up	1
CN13 down	2
CN14 up	3
CN14 down	4
CN21 up	5
CN21 down	6
CN22 up	7
CN22 down	8
CN23	9

10. ARS-2061F (PCB: 5.4), Red for Source Port



SATA Port#	Channel NO#
CN12 up	0
CN12 down	1
CN13 up	2
CN13 down	3
CN14 up	4
CN14 down	5
CN15 up	6
CN15 down	7
CN17	8
CN18	9
CN20	10
CN23	11

Technical Support Form

Email address: support@acard.com
Website: http://www.acard.com

Model Name* (ex: ARS-5503H)		Firmware version*	
System Configuration			
Motherboard/System model*			
SCSI host adapter/chip brand & model*			
SCSI host BIOS version			
Other I/O card*			
Operating System*			
SATA HDD brand & model*			
SATA HDD capacity			
SATA HDD firmware			
Problem description*			

『 * 』 is required